

REMARKS

This application has been carefully reviewed in light of the Office Action dated April 3, 2007. Claims 42 to 46 are in the application, of which Claim 42 is the sole independent claim. Reconsideration and further examination are respectfully requested.

In the Office Action, all of the then-pending claims 34 to 41 were rejected under 35 U.S.C. § 103(a), primarily over Figures 9 through 14 of the subject application in view of U.S. Patent 6,567,201 (Tsuchida). In addition, reliance was placed on one or more of the following: Japan 2003-195207 (Kobayashi), U.S. Patent 6,621,512 (Nakajima), and U.S. Patent 6,928,100 (Sato)^{1/}. In response, all claims have been cancelled, and new Claims 42 to 46 substituted therefor. These actions have been taken without prejudice or disclaimer of subject matter, and without conceding the correctness of the rejections. This therefore should be viewed as a traversal of the rejections, for the reasons detailed below.

The invention defined by independent Claim 42 concerns a light scanning apparatus which emits first and second laser beams that are slanted relative to each other to a common rotary polygonal mirror, so as to deflect and scan the two laser beams.

Generally speaking, the art refers to such a light scanning apparatus as a "grazing incidence optical system". Grazing-incidence optical systems are often superior to parallel-incidence optical systems, in terms of size, such as in reduced thickness of the rotary polygonal mirror.

^{1/}Applicant continues to traverse the use of the U.S. patent to Sato, pursuant to the provisions of 35 U.S.C. § 103(c), for the reasons of record.

To obtain further benefits of size reduction, it is preferred to position the laser unit close to the rotary polygonal mirror. With this positioning, however, the tips of lens barrels also become positioned close to each other, in view of the slanting relationship of the first and second laser beams, which in turn limits the closeness with which the laser unit can be positioned to the polygonal mirror.

According to the invention, the lenses are supported at the tips of the lens barrels by plural lens supporting portions, which support parts of the circumferential surfaces of the first and second lenses, except at a position in which the circumferential surfaces of the first and second lenses are close to each other. For example, in one representative embodiment of the invention illustrated at Figures 5 and 6 of the subject application, lens supporting portions 1e support lens 6, and lens supporting portions 1f support lens 7. These lens supporting portions support parts of the circumferential surfaces of lenses 6 and 7, except at a position in which the circumferential surfaces of lenses 6 and 7 are close to each other.

By virtue of this arrangement, which promotes close spacing of the lenses, a laser unit can be positioned in close relationship to the polygonal mirror.

The applied art has been reviewed, but none of it is seen to disclose or to suggest a grazing-incidence optical system in which there are plural lens supporting portions which support parts of circumferential surfaces of first and second lenses except at a position in which the circumferential surfaces of the first and second lenses are close to each other.

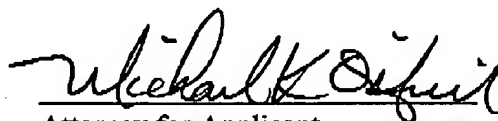
In particular, none of Tsuchida, Kobayashi and Sato are seen to disclose a grazing-incidence optical system. Tsuchida discloses a parallel-incidence optical system, and in Applicant's view, both of Kobayashi and Sato disclose single lasers only.

Nakajima describes a grazing-incidence optical system, but he is not seen to disclose or to suggest a grazing-incidence optical system in which there are plural lens supporting portions, which support parts of circumferential surfaces of first and second lenses, except at a position in which the circumferential surfaces of the first and second lenses are close to each other. In fact, as understood by Applicant, all of Nakajima's embodiments disclose a single lens supporting portion which is deliberately positioned between the lenses. For example, in the embodiment of Figures 49 and 50, there is a U-shaped mounting portion 705-3 and a U-shaped mounting portion 705-4, for mounting of coupling lenses 703 and 704. The U-shaped mounting portions are deliberately positioned between lenses 703 and 704, which is exactly opposite to the claimed arrangement in which there are mounting portions "except at a position in which the circumferential surfaces of said first and second lenses are close to each other".

It is therefore respectfully submitted that the claims herein define subject matter that would not have been obvious from any permissible combination of the applied art, and allowance of the claims is respectfully requested.

Applicant's undersigned attorney may be reached in our Costa Mesa, California office by telephone at (714) 540-8700. All correspondence should be directed to our address given below.

Respectfully submitted,



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